

Lampson Reservoir Solar Photovoltaic Systems Installation & Magnolia Street Median Irrigation Retrofit

Energy Savings and GHG Emissions Reduction Information Source

The information source for the factors entered for the Lampson Reservoir Solar Photovoltaic Systems Installation project is the attached proposal provided by Chevron Energy Solutions (now known as OpTerra Energy Services). Please see page 2 for the number of greenhouse gas emissions the system will reduce. ✓



Building a Greener Future for City of Garden Grove With Clean, Renewable Energy

Chevron Energy Solutions (Chevron ES) is committed to providing the City of Garden Grove with a successful project based on safety, reliability, technical performance, and energy savings. Based on our extensive experience working with similar customers (including Chevron Corporation) at mission critical facilities where power reliability, risk mitigation, and operational excellence are of the utmost importance, we have established processes and procedures to ensure a successful project in support of the City of Garden Grove's sustainability strategy. Likewise, by selecting to team with Chevron ES on this important project, we can leverage Chevron's energy ingenuity & renewable experience to support the City of Garden Grove's stated objective of "GOING GREEN".

At Chevron ES we pride ourselves on our outstanding safety record and ability to deliver successful projects nationwide. We look forward to the opportunity of working with the City of Garden Grove to implement a safe, reliable and efficient project that supports the City's mission to be a leader as responsible stewards of our environment and in promoting clean, GREEN, renewable energy.



City of Brea, PV Roof Mount System at the Civic Center

System Recommendations

Based on a comprehensive review of the data provided by the City of Garden Grove and an understanding of the critical success factors of this project (return on investment, hedge against future rate increases, offsetting increased electrical load and costs from upgrading and adding pumps, minimized disruption to facility occupants, and strong economic value), we are recommending a 346 kW DC system utilizing the rooftop indicated by previous discussions and visits to the City's Facility.

Unfortunately the R rate has been exhausted and is no longer available. This reduced the savings projected in the original proforma presented in August of 2012, by roughly \$40,000. However, should the



City elect to move forward with this project, we would look to refine our savings projections by analyzing the City's current operating schedules, the addition of the new pump well and current rates being charged to the City by SCE.

This solution will still allow the City to take advantage of clean, renewable power with attractive incentives. The California Solar Initiative incentive has dropped down to Step 9, and while this is less incentive money than the City could capture in 2012, it still remains a viable way to enhance the program economics.

Key Program Benefits

The 346 kWh DC Proposed Solar program is custom designed for the City of Garden Grove to deliver the following significant Program Benefits. These benefits will provide lasting value and positive public recognition for the City of Garden Grove over the 25 year life of the project.

- **Local Leadership and Fiscally Responsible Approach**
 - The \$1,549,671 Program cost conservatively projects net energy offset/savings of approximately **\$2,2MM over the 25 year life of the PV system.**
 - Payback period supports a fiscally responsible approach in a financially challenging environment.
 - Budget predictability and hedge against future rate increases from SCE.
 - Over the 25 year life of the Program, the following financial benefits are:
 - **\$291,000** in California Solar Initiative Incentive dollars
 - **Potential savings due to Rate Change Savings**
 - **Guaranteed Energy Savings**
 - Allows the City of Garden Grove to power the increased water pumping demand with clean, renewable and economically viable solar power.
- **Local Environmental Stewardship**
 - **Lead by Example:** Supports the City of Garden Grove's corporate mission of "GOING GREEN".
 - Provides clean, renewable energy and helps protect our environment.
 - Reduces green house gas emissions by 517,784kWh annually which equates to removing 70 passenger cars from the road.
- **Local Energy Partner with Deep Experience**
 - Local design capability.
 - Project managed and built by our local team.
 - Keeping construction dollars in the community helps to stimulate local economic development and local economic stimulus
 - Chevron Energy Solutions is a local partner who is headquartered in and committed to the economic viability and success of California.

Additional Benefits

Our proposal for a solar power system at the City of Garden Grove's facility has many differentiated design, delivery, and safety/energy surety benefits, as highlighted below:

- **Design & Delivery**
 - Our PV system design maximizes kWh production value by having arrays face due south at a 5 degree tilt and captures peak power pricing.
 - The recommended roof structure minimizes roof penetration with a ballasted system.



- **Safety & Energy Surety**

- Uninterrupted electrical service to the facility during construction to preserve mission critical operations

- **Other Value-Added Services**

- Performance guarantee on production
- 24/7 monitoring, measurement, and verification, as well as expedient response time to any issues that arise
- 24/7 web access to performance data and a flat-screen LED kiosk for employees to see production and benefits
- Optional access to Chevron ES's public relations and press teams to develop, at the City of Garden Grove's request, world-class marketing & media to support the City's goals & brand value

To demonstrate Chevron ES's experience with EPC work at mission-critical facilities, we have attached an overview of our company's history of excellence. Below is a brief sampling of our strong qualifications:

Top Solar Installer

Chevron ES has installed over 400 MW of renewable capacity on a global scale; in 2011, we were named the #1 solar installer in Silicon Valley by the *San Jose Business Journal*. Our local design/build solar photovoltaic experience includes the development, design, and installation of:

- Largest rooftop solar system at a federal facility – Santa Rita Jail.
- Largest (7.1 MW) and second largest (5.5MW) solar power and energy-efficiency programs at two U.S. K-12 school districts – East Side Union High School District and San Jose Unified School District.
- Largest power installation for an institution of higher learning in North America.
- Largest Municipally-owned 1.8MW solar PV installation at the City of Brea.
- First solar PV installation at an elementary school district in Orange County at Huntington Beach City School District
- Largest solar PV installation at an Orange County District at Santa Ana Unified School District.
- One of the largest solar PV systems at a transit agency in the U.S. – Los Angeles Metropolitan Transit Authority.
- First solar PV facility in California to help power oil field operations.

Locally, Chevron ES maintains and is committed to a strong and active presence near the City of Garden Grove's campus.

Experience with SCE

We have significant experience working with SCE. Given our 35+ years of ESCO experience – on projects involving solar photovoltaic, fuel cells, cogeneration, energy efficiency measures, substations, etc. – our teams have nearly unparalleled expertise in incentives, electric and gas interconnections, rate optimization, and utility infrastructure upgrades. In addition, we have experience working with California Public Utilities Commission (CPUC), California Environmental Qualities Association (CEQA), the U.S. Environmental Protection Agency (EPA), and numerous other permitting agencies to expedite the development and implementation processes, and our local relationships and presence support that.



Procurement & Local Labor

Given Chevron's annual \$20+ billion capital budget, the Corporation negotiates master purchase agreements with a multitude of equipment manufacturers, consultants and service providers. This massive purchasing power and market leverage result in favorable terms, pricing and equipment lead times from competing vendors that we pass on to our customers. Chevron ES understands that the City of Garden Grove benefits from choice, and no single system component, supplier or contractor can meet the needs of every district. We specialize in competitively bidding the materials and installation of the project with a pool of qualified providers.

As part of our Engineering, Procurement, Contracting (EPC) process, our Procurement department runs a competitive procurement process for equipment, labor/sub-contractors, and financing. We maintain strong relationships with local contractors, and are able to utilize and involve City of Garden Grove's preferred contractors as part of this process.

Performance Guarantee

A performance guarantee is only as good as the company providing the guarantee. Chevron ES provides a performance guarantee that is comprehensive and straightforward. If our guaranteed projects do not meet expected performance, we will reimburse our customers for the difference between expected and actual performance in accordance with the terms and conditions of the contract.



"This project positions Brea as an environmental leader...and demonstrates fiscal responsibility by investing in long term, sustainable projects that will benefit our community for decades to come."

-Roy Moore; Mayor, City of Brea